HIGH DEFINITION MULTIMEDIA INTERFACE POWER MANAGEMENT

CROSS REFERENCE TO RELATED APPLICATION

[0001] The present application claims the benefit of the filing date of India Patent Application No. 5073/CHENP/2015, filed Sep. 23, 2015, which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present techniques relate generally to transmission of power. More specifically, the present techniques relate to methods of managing the transmission of power using a high definition multimedia interface (HDMI).

BACKGROUND ART

[0003] HDMI is a proprietary audio/video interface for transferring uncompressed video data and compressed or uncompressed digital audio data from an HDMI-compliant source computing device. The computing device can connect and transmit the video/audio data to a number of to the panel of a number of HDMI devices including a computer monitor, a video projector, a digital television, a digital audio device, and other HDMI compatible signal data receivers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. **1**A is a block diagram of an example system on chip (SoC) on a printed circuit board (PCB) for power transmission with HDMI;

[0005] FIG. **1**B is a schematic diagram of a simplified example of an apparatus for receiving power from a panel through an HDMI;

[0006] FIG. **2** is a block diagram of an example panel for providing power to system on a chip;

[0007] FIG. **3** is a process flow diagram describing an example method for power management during HDMI connection;

[0008] FIG. **4** is a process flow diagram describing an example method for power management during an HDMI disconnection;

[0009] FIG. **5** is a block diagram showing tangible, non-transitory computer-readable media that stores code for power transmission with an HDMI; and

[0010] FIG. **6** is a process flow diagram describing an example method for power management and detection through an HDMI.

[0011] The same numbers are used throughout the disclosure and the figures to reference like components and features. Numbers in the 100 series refer to features originally found in FIG. **1**; numbers in the 200 series refer to features originally found in FIG. **2**; and so on.

DESCRIPTION OF THE EMBODIMENTS

[0012] Power for computing devices, including mobile phones and tablets can be provided by a separate power line or with an adaptor. Techniques disclosed herein include management and providing of power to a computing device, such as an HDMI compliant source device, through HDMI. The techniques disclosed herein allow the use of a single HDMI connection rather than the use of adaptors and multiple lines for power and signal to a display device. Further, in an example, the present techniques allow the display and transmission of video/audio data through the HDMI rather than through a Display Port of the computing device to a Display port of a display device.

[0013] In the following description, numerous specific details are set forth, such as examples of specific types of processors and system configurations, specific hardware structures, specific architectural and micro architectural details, specific register configurations, specific instruction types, specific system components, specific measurements/heights, specific processor pipeline stages and operation etc. in order to provide a thorough understanding of the present invention. It can be apparent, however, to one skilled in the art that these specific details need not be employed to practice the present invention. In other instances, well known components or methods, such as specific and alternative processor architectures, specific logic circuits/code for described algorithms, specific firmware code, specific interconnect operation, specific logic configurations, specific manufacturing techniques and materials, specific compiler implementations, specific expression of algorithms in code, specific power down and gating techniques/logic and other specific operational details of computer system haven't been described in detail in order to avoid unnecessarily obscuring the present invention.

[0014] Although the following embodiments may be described with reference to energy conservation and energy efficiency in specific integrated circuits, such as in computing platforms or microprocessors, other embodiments are applicable to other types of integrated circuits and logic devices. Similar techniques and teachings of embodiments described herein may be applied to other types of circuits or semiconductor devices that may also benefit from better energy efficiency and energy conservation. For example, the disclosed embodiments are not limited to desktop computer systems or Ultrabooks™. And may be also used in other devices, such as handheld devices, tablets, other thin notebooks, systems on a chip (SoC) devices, and embedded applications. Some examples of handheld devices include cellular phones, Internet protocol devices, digital cameras, personal digital assistants (PDAs), and handheld PCs. Embedded applications typically include a microcontroller, a digital signal processor (DSP), a system on a chip, network computers (NetPC), set-top boxes, network hubs, wide area network (WAN) switches, or any other system that can perform the functions and operations taught below. Moreover, the apparatus', methods, and systems described herein are not limited to physical computing devices, but may also relate to software optimizations for energy conservation and efficiency. As can become readily apparent in the description below, the embodiments of methods, apparatus', and systems described herein (whether in reference to hardware, firmware, software, or a combination thereof) are vital to a 'green technology' future balanced with performance considerations.

[0015] FIG. **1**A is a block diagram of an example system on chip (SoC) **100** on a printed circuit board (PCB) for power transmission with HDMI. The SoC **100** and PCB **102** may be components of, for example, a computing device such as a laptop computer, desktop computer, Ultrabook, tablet computer, mobile device, mobile phone, or server, among others. The SoC **100** may include a central processing unit (CPU) **104** that is configured to execute stored